

REMARKS

The claims are claims 1, 4, 5, 13, 15, 16, 23, 24 and 27 to 30.

Claims 1, 4 and 5 were rejected under 35 U.S.C. 102(e) as anticipated by Mann U.S. Patent No 6,009,270.

Claim 1 recites subject matter not anticipated by Mann. Claim 1 recites "identifying a program counter value" and "expressing said corresponding program counter value as an offset which indicates a number of program counter values in the program counter trace stream by which said corresponding program counter value is offset from said synchronization marker in said program counter trace stream." The FINAL REJECTION incorporates the arguments of the OFFICE ACTION of March 22, 2005 which cites Mann at column 13, lines 56 to 62 as teaching "that branching causes disruption in the flow and non-data dependent branching...can be represented in a form of an offset indicating whether the branch was taken or not." Mann states at column 13, lines 56 to 62:

"Preferably, only instructions which disrupt the instruction flow are reported; and further, only those where the target address is in some way data dependent. For example, such 'disrupting' events include call instructions or unconditional branch instructions in which the target address is provided from a data register or other memory location such as a stack."

This portion of Mann fails to teach the claimed "offset which indicates a number of program counter values in the program counter trace stream by which said corresponding program counter value is offset from said synchronization marker." The claimed synchronization marker is not mentioned in this portion of Mann. There is no mention of reporting the program counter value based

upon "a number of program counter values" difference with such a synchronization marker. Mann states at column 14, lines 7 to 16:

"FIG. 6A illustrates an exemplary format for reporting conditional branch events. In the disclosed embodiment of the invention, the outcome of up to 15 branch events can be grouped into a single trace entry. The 16-bit TDATA field (or 'BFIELD') contains 1-bit branch outcome trace entries, and is labeled as a TCODE=0001 entry. The TDATA field is initially cleared except for the left most bit, which is set to 1. As each new conditional branch is encountered, a new one bit entry is added on the left and any other entries are shifted to the right by one bit."

The "exemplary format for reporting conditional branch events" includes a bit for each such conditional branch indicating it was taken or not taken. This portion of Mann likewise fails to teach the claimed synchronization marker, or the claimed offset. Mann states at column 15, lines 8 to 15 (including the portion cited in the OFFICE ACTION):

"When processing a trace stream in accordance with the invention, trace address values are combined with a segment base address to determine an instruction's linear address. The base address, as well as the default data operand size (32 or 16-bit mode), are subject to change. As a result, the TCODE=0011 and 0111 entries are configured to provide the information necessary to accurately reconstruct instruction flow."

This portion of Mann teaches that the trace address values are an offset that is combined with a segment base address "to determine an instruction's linear address." This portion of Mann teaches providing "the information necessary to accurately reconstruct instruction flow." Thus a change in segment base address is communicated as part of the trace stream. This portion of Mann includes no teaching that a synchronization marker is the same as the segment base address. For example, Mann teaches providing a

new synchronization marker following a taken conditional branch whose target address is data in a register at column 3, lines 5 to 7. However, Mann fails to teach that the trace address values following such a synchronization marker are offset from the synchronization marker value. Instead, Mann teaches that the trace address values are offset from the prior and still unchanged segment base address. Accordingly, claim 1 is not anticipated by Mann. The OFFICE ACTION of March 22, 2005 states that column 16, lines 2 to 6 teaches the claimed synchronization marker. However, this portion of Mann mentions a synchronization register TSYNC "provided to allow injection of synchronizing address information." Mann states at column 16, lines 13 to 29 (immediately following the portion cited by the Examiner):

"The processor determines whether each trace record includes address information by, e.g., assuming all TCODES except for TCODE=1 are synchronizing events providing address information. Thus, in the described embodiment, each trace entry having a TCODE not equal to "1" causes a counter to be loaded to the value in the TSYNC register which allows the counter to count the desired maximum number of trace records generated before current program address information is provided. Thus, depending on if the counter is configured as an up counter or down counter, the counter is either loaded with zero or the maximum count, respectively. The counter counts each trace record produced which does not include address information. When the count of such trace records reaches the predetermined number; trace logic provides the current program address as a trace entry, thereby providing said trace synchronization information."

Thus the synchronization register TSYNC causes periodic "providing said trace synchronization information." The FINAL REJECTION cites various entries in Table 6 which transmit address values. Thus this `synchronization register TSYNC cannot be the recited synchronization marker recited in claim 1. The FINAL REJECTION fails to point out where Mann teaches these address values are

specified "as an offset which indicates a number of program counter values in the program counter trace stream by which said corresponding program counter value is offset from said synchronization marker in said program counter trace stream." As pointed out above the only offset taught in Mann is relative to the segment register. There is no teaching in Mann that a full count in the synchronization register TSYNC causes generation of a new segment address, only that "trace logic provides the current program address as a trace entry." Further there is no teaching in Mann that the addresses provided by the other entries in Table 6 are specified as an offset to a synchronization marker as recited in claim 1. Thus claim 1 is allowable over Mann.

Claim 4 recites subject matter not anticipated by Mann. Claim 4 recites "counting detected occurrences of program counter loads." Mann states at column 16, lines 35 to 55 (including the portion cited in the OFFICE ACTION):

"Referring to FIG. 7, in operation, a counter 701 is set to the value contained in the synchronization register TSYNC 703 whenever a synchronizing trace entry (e.g., containing a branch target address) is generated. Trace control logic 218 determines when a synchronizing trace entry is generated and provides load signal 705 whenever such addresses are generated. This can be summarized as follows. The counter is decremented by one for each TCODE=1, thus providing for a maximum number of consecutive conditional branch instructions.

"Thus, counter 701 is reloaded each time a target address is generated or other appropriate TCODE is generated indicating a synchronizing record has been provided. Counter 701 is decremented by one for trace entries not having an address. If the counter reaches zero, an indication 707 is asserted by counter 701 and provided to trace control 218. In response, trace control 218 causes a trace entry to be inserted with a code indicating that it is a synchronization entry (TCODE=0110) and a current program address. The current program address can be, e.g., the most recently retired instruction."

This portion of Mann teaches that the value loaded into the counter 701 is "the value contained in the synchronization register TSYNC 703." This portion of Mann further teaches the value in counter 701 "is decremented by one for trace entries not having an address." Thus counter 701 is loaded when a program counter load causing a program counter discontinuity occurs. However, counter 701 thereafter counts down for continuous program counter operation, i.e. trace entries "not having an address." Thus the value of counter 701 cannot be the number of program counter loads. Note further that counter 701 is loaded with the value of the synchronization register TSYNC 703 not only upon program counter loads ("each time a target address is generated") but also upon "other appropriate TCODE is generated indicating a synchronizing record has been provided." Thus counter 701 does not store a number of program counter loads and is loaded with the synchronization register TSYNC 703 value upon other conditions in addition to program counter loads. Accordingly, claim 4 is allowable over Mann.

Claim 5 recites subject matter not anticipated by Mann. Claim 5 recites "maintaining a running count of a number of program counter loads that have occurred since insertion of the synchronization marker." Such a count requires a counter to be zeroed upon each synchronization marker and incremented upon each detection of a program counter load. Mann teaches that counter 701 is loaded with the synchronization register TSYNC 703 value each time a target address is generated. This occurs upon a program counter load and other conditions. The counter 701 is then decremented on execution of instructions not requiring a new trace address. Thus counter 701 clearly cannot hold the running count recited in claim 5. Accordingly, claim 5 is allowable over Mann.

Claims 13, 15 and 16 were rejected under 35 U.S.C. 103(a) as made obvious by the combination of Sites, U.S. Patent No. 5,764,885, and Mann, U.S. Patent No. 6,009,270.

Claim 13 recites subject matter not made obvious by the combination of Sites and Mann. Claim 13 recites "said program counter identifier operable for expressing said corresponding program counter value as an offset which indicates a number of program counter values in the program counter trace stream by which said corresponding program counter value is offset from said synchronization marker in said program counter trace stream." The OFFICE ACTION cites the same portions of Mann as cited against claim 1 as teaching this limitation. Mann likewise fails to teach the synchronization marker or the offset recited in claim 13. Mann teaches that the trace address values are an offset with a segment base address. Mann includes no teaching that a synchronization marker is the same as the segment base address. Mann teaches providing a new synchronization marker following a taken conditional branch but fails to teach that the trace address values following such a synchronization marker are offset from the synchronization marker value. Instead, Mann teaches that the trace address values are offset from the prior and still unchanged segment base address. The OFFICE ACTION does not allege that Sites adds any teaching to Mann to make obvious this limitation. Accordingly, claim 13 is allowable over the combination of Sites and Mann.

Claim 15 recites subject matter not made obvious by the combination of Sites and Mann. Claim 15 recites "counting detected occurrences of program counter loads." The OFFICE ACTION cites the same portions of Mann as cited against claim 4 as teaching this limitation. Mann teaches that the value loaded into the counter 701 is "the value contained in the synchronization register TSYNC 703" and that the value in counter 701 "is decremented by one for

trace entries not having an address." Thus the value of counter 701 cannot be the number of program counter loads. Note further that counter 701 is loaded with the value of the synchronization register TSYNC 703 not only upon program counter loads ("each time a target address is generated") but also upon "other appropriate TCODE is generated indicating a synchronizing record has been provided." Thus counter 701 does not store a number of program counter loads and is loaded with the synchronization register TSYNC 703 value upon other conditions in addition to program counter loads. The OFFICE ACTION does not allege that Sites adds any teaching to Mann to make obvious this limitation. Accordingly, claim 15 is allowable over the combination of Sites and Mann.

Claim 16 recites subject matter not made obvious by the combination of Sites and Mann. Claim 16 recites "maintaining a running count of a number of program counter loads that have occurred since insertion of the synchronization marker." Such a count requires a counter to be zeroed upon each synchronization marker and incremented upon each detection of a program counter load. The OFFICE ACTION cites the same portions of Mann as cited against claim 5 as teaching this limitation. Mann teaches that counter 701 is loaded with the synchronization register TSYNC 703 value each time a target address is generated. This occurs upon a program counter load and other conditions. The counter 701 is then decremented on execution of instructions not requiring a new trace address. Thus counter 701 clearly cannot hold the running count recited in claim 16. The OFFICE ACTION does not allege that Sites adds any teaching to Mann to make obvious this limitation. Accordingly, claim 16 is allowable over the combination of Sites and Mann.

Claims 23 to 26 were rejected under 35 U.S.C. 103(a) as made obvious by the combination of Sites, U.S. Patent No. 5,764,885,

Mann, U.S. Patent No. 6,009,270, and Edwards, U.S. Patent No. 6,732,307.

Claims 23 and 24 recite subject matter not made obvious by the combination of Sites, Mann and Edwards. Claims 23 and 24 recite "said program counter identifier operable for expressing said corresponding program counter value as an offset which indicates a number of program counter values in the program counter trace stream by which said corresponding program counter value is offset from said synchronization marker in said program counter trace stream." The OFFICE ACTION cites the same portions of Mann as cited against claim 13 as teaching this limitation. Mann likewise fails to teach the synchronization marker or the offset recited in claims 23 and 24. Mann teaches that the trace address values are an offset with a segment base address. Mann includes no teaching that a synchronization marker is the same as the segment base address. Mann teaches providing a new synchronization marker following a taken conditional branch but fails to teach that the trace address values following such a synchronization marker are offset from the synchronization marker value. Instead, Mann teaches that the trace address values are offset from the prior and still unchanged segment base address. The OFFICE ACTION does not allege that Sites or Edwards adds any teaching to Mann to make obvious this limitation. Accordingly, claims 23 and 24 are allowable over the combination of Sites, Mann and Edwards.

Claims 27 and 29 recite subject matter of the same scope as claim 15 except dependent upon respective claims 23 and 24. Claims 27 and 29 are likewise allowable.

Claims 28 and 30 recite subject matter of the same scope as claim 16 except dependent upon respective claims 23 and 24. Claims 28 and 30 are likewise allowable.

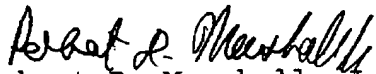
The Applicants respectfully request entry and consideration of this amendment. Entry of this amendment is proper at this time

because the amendment serves only to clarify subject matter previously recited. Thus no new search or reconsideration is required.

The Applicants respectfully submit that all the present claims are allowable for the reasons set forth above. Therefore early entry of this amendment, reconsideration and advance to issue are respectfully requested.

If the Examiner has any questions or other correspondence regarding this application, Applicants request that the Examiner contact Applicants' attorney at the below listed telephone number and address to facilitate prosecution.

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Respectfully submitted,

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